Earthwork





EARTHWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Clearing, grubbing and site preparation
- B. Removal and disposal of debris
- C. Handling, storage, transportation, and disposal of excavated material
- D. Sheeting, shoring, bracing and protection work
- E. Pumping and dewatering as required or necessary
- F. Backfilling
- G. Pipe embedment
- H. Construction of fills and embankments
- I. Pavement Subgrade preparation
- J. Trench Stabilization
- K. Final grading
- L. Slope Stabilization
- M. Erosion Control
- N. Appurtenant work

1.2 REFERENCES

- A. ASTM C136 Sieve Analysis of Fine and Coarse Aggregates
- B. ASTM D1241 Material for Soil Aggregate Subbase, Base and Surface Courses
- C. ASTM D698 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12-Inch Drop
- D. ASTM D4253 Test Methods for Maximum Index Density of Soils Using a Vibratory Table
- E. ASTM D2922 Test Methods for Density of Soil and Soil-Aggregate Mixtures in Place by Nuclear Methods (Shallow Depth)

- F. ASTM D3017 Test Method for Moisture Content of Soil and Soil-Aggregate Mixtures
- G. ASTM C33 Concrete Aggregates
- H. ASTM D4253 Test Methods for Maximum Index Density of Soils Using a Vibratory Table
- I. ASTM D4254 Test Methods for Minimum Density of Soils and Calculations of Relative Density

1.3 SUBMITTALS

- A. Product Data: Submit on all products or materials supplied herein
- B. Test Reports: Indicate supplier, sieve analysis, optimum moisture content and density in accordance with ASTM D698 if appropriate for crushed rock or gravel, pipe embedment and material for fills and embankment

1.4 REGULATORY REQUIREMENTS

- A. Obtain and comply with all requirements of Town of Winter Park Grading Permit for all land disturbing activities and CDPHE Stormwater and/or Groundwater Discharge Permits, as required.
- B. Comply with applicable requirements of CABO/ANSI A117.1 for accessibility requirements related to walks, ramps, parking areas, drives, curb ramps, etc.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Protect adjacent structures and surrounding areas from damage during excavation, filling, and backfilling
- B. Protect work from erosion or other similar types of damage until the project has been completed. Leave protection in place for building contractors use.
- C. Do not backfill or construct fills during freezing weather. Backfill or construct fills only when temperature is 35°F and rising unless sufficient thawing techniques are uses as authorized by the Town
- D. Do not use frozen materials, snow, or ice in any backfill or fill area
- E. Do not backfill or construct fill on frozen surfaces
- F. Protect excavated material from becoming frozen
- G. Do not remove trees from outside excavation or fill areas unless authorized by the Town; protect from permanent damage by construction activities
- H. Provide temporary bridges for roadways, walkways, driveways, etc.

1.6 QUALITY ASSURANCE

A. All imported material to be free of hazardous and organic wastes, "clean" as defined by EPA, and approved for its intended use by the Town or project geotechnical engineer.

PART 2 PRODUCTS

2.1 MATERIALS

A. General - Soil materials, whether from sources on or off the site must be approved by the soils engineer as suitable for intended use and specifically for required location or purpose.

B. Fills and Embankments

- 1. To the maximum extent practical use excess earth from onsite excavation for fills and embankments.
- 2. Free from rocks or stones larger than 12 inch in greatest dimension and free from brush, stumps, logs, roots, debris, and organic and other deleterious materials
- 3. Fill and embankment material must be acceptable to Town
- 4. No rocks or stones larger than 6 inch in upper 18 inches of fill or embankment. Where allowed, distribute rocks and stones through the fill to not interfere with compaction.

C. Imported Fill for Fills and Embankments:

- 1. The contractor is responsible for obtaining additional material for fills and embankments as necessary to meet the requirements shown on the plans
- 2. Imported fill conforming to the following:
 - a. Gradation (percent finer by weight ASTM C136): 3" 100% passing, No. 4 Sieve 50-100% passing, and No. 200 Sieve 35% passing (max)
 - b. Liquid Limit: 35 (max), Plasticity Index: 15 (max), Group Index: 10 (max)

D. Structural Fill

- 1. Imported structural fill, such as a minus ½-inch CDOT Class 7 Aggregate Road Base, conforming to the following:
 - a. Gradation: 1" 100% passing (percent finer by weight ASTM C136), No. 8 Sieve 20-85% passing, and No. 200 Sieve 20% (max)
 - b. Liquid Limit: 35 (max), Plasticity Index: 15 (max), R- Value: 50 (min)

E. Topsoil

- 1. Topsoil is defined as friable (easily crumbled) clay loam surface soil, with high organic content, found in a depth of not less than 4" below existing grade. Excavate acceptable material further to provide all topsoil necessary for project needs
- 2. Clean topsoil, free of plants and seed will be spread to 4" minimum depth, or as specified by landscaping specifications and plans, whichever is greater, for areas of the site as detailed by the landscape plans.
- 3. Reuse grubbings and surface topsoil containing plants and seeds in designated revegitation areas only.

4. Stockpile of all remaining topsoil which is fertile, friable, natural loam, surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of rocks, stumps, stones larger than 2" in any dimension, and other extraneous or toxic matter harmful to plant growth for areas to be seeded or planted.

F. Pipe Embedment: Graded gravel

1. Washed rock - 7/8 inch

2. Squeegee

SIEVE SIZE (INCH)	PERCENT PASSING BY WEIGHT
3/8	100
NO. 4	85-100
NO. 8	30-70
NO. 16	5-40
NO. 30	0-15
NO. 50	0-10
NO. 100	0-5
NO. 200	<1

G. Compacted Trench Backfill

- 1. Job excavated material finely divided, free of debris, organic material, and stones larger than 6 inch in greatest dimension without masses of moist, stiff clay, or topsoil
- 2. Graded gravel: As specified or shown on drawings for pipe embedment

H. Trench Cover

- 1. Free of brush, debris and roots
- 2. May contain rubble and detritus from excavation, stones and boulders if well separated and arranged not to interfere with backfill settlement
- 3. In upper 18 inch no rock or rock excavated detritus, larger than 6" except with specific approval of Town
- 4. No stones larger than 6 inch in greatest dimension within 3 feet of top of pipe

PART 3 EXECUTION

3.1 EXAMINATION

A. Field verify the location of all underground utilities, pipelines and structures prior to excavation

3.2 PERFORMANCE—GENERAL

A. Perform work in a safe and proper manner with appropriate precautions against hazard

- B. Provide adequate working space and clearances for work performed within excavations and for installation and removal of utilities
- C. Contain all construction activity on the designated site and limits of work. Cost of restoration off site will be born by the Contractor

3.3 PRESERVATION OF TREES

- A. Do not remove trees outside fill or excavated areas, except as authorized by Town
- B. Protect trees left standing from permanent damage by construction operation
- C. Trim standing trees as directed by Town

3.4 PREPARATION

- A. Clear all site areas to be occupied by permanent construction of grasses, roots, brush, and other objectionable material and debris.
- B. Clean and strip subgrade for fills and embankments of surface vegetation, sod, tree stumps and organic topsoil.
- C. Remove all waste materials from site and dispose. Stockpile all acceptable grubbings for reuse in native revegitation areas.
- D. Remove debris, all trees, underbrush, stumps, roots and other combustible materials from site daily and dispose of off-site; on-site burning is not permitted

3.5 TOPSOIL

- A. Strip on-site material meeting the topsoil definition to a minimum depth of 4 inches for all areas receiving grading where shown on drawings
- B. At the completion of work in each area, place and grade topsoil to maintain gradient as indicated and required. Roughen surface for erosion control

3.6 DEWATERING

A. Dewatering requires Colorado Department of Public Health and Environment dewatering permit. Contractor must obtain dewatering permit and comply with discharge requirements therein, if necessary

3.7 SHEETING, SHORING AND BRACING

A. Provide proper and substantial sheeting, shoring, and bracing, in accordance with OSHA Standards as required, to prevent caving or sliding, to protect workmen and the Work, and to protect existing structures and facilities

- B. Design and build sheeting, shoring, and bracing to withstand all loads that might be caused by earth movement or pressure, and to be rigid, maintaining shape and position under all circumstances
- C. Do not pull trench sheeting before backfilling unless pipe strength is sufficient, to carry trench loads based on trench width to the back of sheeting
- D. Do not brace sheeting left in place against the pipe, but support it in a manner that precludes concentrated loads or horizontal thrusts on pipe
- E. Cross braces installed above the pipe to support sheeting may be removed after pipe embedment is completed

3.8 TRENCH STABILIZATION

- A. Thoroughly compact and consolidate subgrades for concrete structures, precast structures, and utility trench bottoms so they remain firm, dense and intact during required construction activities
- B. Remove all mud and muck during excavation
- C. Reinforce subgrades with crushed rock or gravel if they become mucky during construction activities
- D. Finished elevation of stabilized subgrades are to be at or below subgrade elevations indicated on drawings
- E. Allow no more than ½ inch depth of mud or muck to remain on trench bottoms when pipe bedding material is placed thereon

3.9 PAVEMENT OVEREXCAVATION AND SUBGRADE PREPARATION

- A. Excavate subgrade for drives and parking per the lines, grades, and dimensions indicated on drawings within a tolerance of plus or minus 0.10 foot. Excavate subgrade for walks and other flatwork per the lines, grades, and dimensions indicated on drawings within a tolerance of plus or minus 0.05 foot.
- B. Overexcavate and scarify existing soil as required under pavement areas, slabs, curbs and walks to meet the moisture and compaction specifications herein to depth shown on drawings or as specified by Geotechnical Engineer
- C. Extend subgrade preparation a minimum of 1 foot beyond back of proposed pavement, slabs, curbs and walks.
- D. Proof roll at a maximum of 24 hours prior to paving to locate any soft spots. Contractor to stabilize any soft areas with aggregate base course and compact to specified values. Reshape subgrade and wet as required.

3.10 FILLS AND EMBANKMENTS

- A. Level and roll subgrade so surface materials will be compact and bond with the first layer of fill or embankment
- B. Place in horizontal layers at maximum uncompacted depth per compaction specifications herein.
- C. Spread and level material deposited in piles and windrows before compacting
- D. Thoroughly compact each layer by rolling or other means acceptable to Town to meet the moisture and compaction specifications herein.
- E. Alter compaction methods if material fails to meet specified density
- F. Where a trench passes through a fill or embankment, place and compact fill or embankment to 12 inch above the top of the pipe before excavating the trench
- G. Add water and harrow, disc, blade, or otherwise work each layer to obtain the uniform moisture content and adequate compaction
- H. Refer to geotechnical report for additional requirements for fill and subgrade preparation requirements.
- I. Extend subgrade preparation and/or structural fill a minimum of 2 feet beyond back of proposed structure foundation limit.

3.11 COMPACTION

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure as described herein.
- C. Refer to geotechnical report for additional requirements for site development material, subexcavation, compaction, etc.
- D. Percentage of Maximum Dry Density Requirements: Moisture treat and compact soil to not less than the following percentages of maximum dry density according to ASTM D 698 as follows:
 - 1. For overexcavation areas under paving and structures, compact each layer of backfill or fill material (as accepted by geotechnical engineer) at 95 percent maximum dry density and moisture treat to within minus 2 to plus 2 percent of optimum moisture content
 - 2. For fill under site features and concrete and asphalt pavements not within the public right-of-way, compact to depth of 12" minimum at 95 percent of maximum density

- within minus 2 to plus 2 percent of optimum moisture content. Extend compaction and moisture treatment to a minimum of one foot beyond the outermost extent of site concrete and asphalt. Compact in right-of-way to Town standards and specifications.
- 3. At utility trench backfill, compact each layer of backfill at 95 percent maximum dry density to within minus 2 to plus 2 percent of optimum moisture content
- 4. For fill under lawn or unpaved areas, scarify and compact the top 6 inches below subgrade and each layer of backfill or fill material to 90 percent maximum dry density to within minus 2 to plus 2 percent of optimum moisture content.
- 5. Do not deposit or compact tamped or otherwise mechanically compacted backfill if frozen or if in water.
- 6. Take particular care to compact backfill which will be beneath slabs, pipes, drives, roads, parking areas, curb, gutters, or other surface construction.

3.12 BORROW OR SPOIL AREA

- A. The location, size, shape, depth, drainage, and surfacing of borrow or spoil pits shall be acceptable to Town. Provide Town with detailed plans prior to construction.
- B. Make all areas regular in shape with graded and surfaced side and bottom slopes when completed
- C. Cut side slopes not steeper than 1:1 and uniform for the entire length of any 1 side
- D. Final grade disturbed areas of borrow to uniform slope (maximum slope = 4:1, minimum slope = 50:1).
- E. Use material free of debris and deleterious material

3.13 TRENCH EXCAVATION

- A. Establish alignment and grade or elevation from offset stakes
- B. Excavate trenches so pipes can be laid straight at uniform grade without dips or bumps, between the terminal elevations indicated on the drawings
- C. Comply with pipe specification sections regarding vertical and horizontal alignment and max joint deflection
- D. Measure pipe cover depth vertically from top of pipe to finished ground or surface elevation
- E. Do not open more trench in advance of pipe laying than is necessary to expedite the work; not more than 100 feet
- F. Except where tunneling or boring is indicated on the drawings, specified, or permitted by Town, excavate trenches by open cut from the surface
- G. Limiting trench widths

- 1. Excavate to a width which will provide adequate working space and pipe clearances for proper pipe installation, jointing, embedment
- 2. If needed to reduce earth loads to prevent sliding, cut banks back on slopes which extend not lower than 1 foot above the top of the pipe
- 3. Stipulated minimum clearances are minimum clear distances, not minimum average distances
- 4. Max trench width from 6 inch above the top to trench bottom of the installed pipe: Pipe O.D. plus 24 inches
- 5. Limiting trench widths and permissible clearances from 6 inches above top of pipe to trench bottom for installed pressure and non-pressure piping

PIPE (INCH)	SIZE	MINIMUM TRENCH WIDTH	MAXIMUM TRENCH WIDTH
3		1' 6"	2' 6"
4		1' 6"	2' 6"
6		1' 6"	2' 6"
8		1' 8"	2" 8"
10		2' 0"	3' 0"
12		2' 0"	3' 0"
16		2' 8"	3' 8"
18		3' 0"	4' 0"
24		3' 6"	4' 6"
36		4' 6"	5' 0"

H. If the width of the lower portion of the trench exceeds the max permitted, provide pipe of adequate strength, special pipe embedment, or arch concrete encasement as required by loading conditions and as determined by Town

I. Mechanical excavation

- 1. Do not use where its operation would damage buildings, culverts, or other existing property, structures, or utilities above or below ground; hand excavate only in such areas
- 2. Use mechanical equipment of a type, design, and construction and operated so that
 - a. Rough trench bottom elevation can be controlled
 - b. Uniform trench widths and vertical sidewalls are obtained from 1 foot above the top of the installed pipe to the bottom of the trench
 - c. Trench alignment is such that pipe is accurately laid to specified alignment and is centered in the trench with adequate clearance between pipe and trench sidewalls
- 3. Do not undercut trench sidewalls
- 4. Recompact trench bottom disturbed by bucket teeth prior to placement of embedment material
- J. Except as otherwise required, excavate trenches below the underside of pipes as indicated in the drawings to provide for installation of granular embedment pipe foundation material

- K. Where in earth, trench bottoms for 6 inches and smaller pipe may be excavated below pipe subgrade and granular embedment provided or the trench may be graded to provide uniform and continuous support (between bell holes or end joints) of the installed pipe, Contractor's option
- L. Whenever so directed by Town, excavate to such depth below grade as Town directs and bring the trench bottom to grade with such material as Town may direct
- M. Provide concrete, or other foundations made necessary by unstable soil as directed by Town
- N. Excavate to provide adequate clearance for tools and methods of pipe installation
- O. Do not allow any part of bells or couplings to contact the trench bottom, walls, or granular embedment when pipe is joined
- P. Cuts in existing surface construction
 - 1. No larger than necessary to provide adequate working space
 - 2. Cut a clean groove not less than 1½ inch deep along each side of trench or around perimeter of excavation area
 - 3. Remove pavement and base pavement to provide shoulder not less than 6 feet wide between cut edge and top edge of trench
 - 4. Do not undercut trenches, resulting in bottom trench width greater than top widths
 - 5. Make pavement cuts to and between straight or accurately marked curved lines parallel to trench centerline or limits of excavation
 - 6. Remove pavement for connections to existing lines or structures only to the extent required for the installation, or as determined by Town
 - 7. Where the trench crosses the drives, walks, curbs, or other surface construction, remove and replace the surface construction between saw cuts to avoid conflicts with traveled way to either centerline or full width, or as determined by Town

3.14 PIPE EMBEDMENT

- A. Embed pipes above and below the bottom of pipe as indicated in the drawings and as specified herein
- B. Spread and surface grade granular embedment to provide continuous and uniform support beneath pipe at all points between pipe joints
- C. After grading, aligning, and placing pipe in final position, and shoring home, deposit and compact sufficient embedment under and around each side of the pipe and to hold the pipe in proper position and alignment during subsequent operations
- D. Place and compact embedment material uniformly and simultaneously on both sides of pipe to prevent lateral displacement
- E. Granular embedment compact by slicing with shovel or vibrating
 - 1. Maximum uncompacted thickness of layers: 6 inch

F. Compacted embedment: Place in horizontal layers at maximum uncompacted depth per compaction specifications herein. Thoroughly compact each layer to meet the moisture and compaction specifications herein.

3.15 TRENCH BACKFILL

A. Compacted backfill

- 1. For full depth of trench above embedment
- 2. Beneath pavements, surfacing, driveways, curbs, gutters, walks or other surface construction or structures
- 3. In street or highway shoulders
- 4. In established sodded areas
- 5. Beneath fills and embankments
- B. Where the trench for one pipe passes beneath the trench of another pipe, compact the backfill for the lower trench to the bottom of the upper trench
- C. Place job excavated materials in 8 inch max uncompacted thickness, uniform layers
- D. Increased layer thickness may be permitted for uncohesive material if Contractor demonstrates to Town's satisfaction that specified compacted density will be achieved
- E. Use methods and equipment appropriate to the material to be compacted to prevent transmission of damaging shocks to pipe
- F. Thoroughly compact each layer to meet the moisture and compaction specifications herein.

G. Graded gravel

- 1. Deposit in uniform layers of 12 inch max uncompacted thickness
- 2. Compact with suitable vibrating roller or platform vibrator to not less than 70 percent relative density per ASTM D4253/D4254

H. Uncompacted backfill

- 1. Compaction of backfill above pipe embedment in locations other than those specified, is required only to prevent future settlement
- 2. May be placed by any method acceptable to Town which will not impose excessive concentrated or unbalanced loads, shock, or impact on, and will not result in displacement of installed pipe
- 3. Do not drop compact masses of stiff clay or other consolidated material more than 5 feet into trench unless cushioned by 2 feet minimum of loose backfill above pipe embedment
- I. Finish the top portion of backfill with at least 4 inches of topsoil or as specified by landscaping specifications and plans, whichever is greater, corresponding to, or better than, that underlying adjoining turf areas

3.16 DRAINAGE MAINTENANCE

- A. Do not backfill trenches across roadways, drives, walks or other trafficways adjacent to drainage ditches or water courses prior to backfilling the trench on the upstream side of the trafficway to prevent impounding water after pipe is laid
- B. Backfill so that water does not accumulate in unfilled or partially filled trenches
- C. Remove materials deposited in roadway ditches or other water courses crossed by the trench line immediately after backfilling is completed and restore ditches and water courses to original section, grade, and contours
- D. Do not obstruct surface drainage any longer than necessary
- E. Provide and maintain temporary bridges and other structures across unfilled trenches as required to maintain traffic

3.17 PROTECTION OF TRENCH BACKFILL

- A. Where trenches are constructed in ditches or other water courses, protect backfill from erosion
- B. Install ditch checks where the ditch grade exceeds 1 percent
 - 1. Minimum depth: 2 feet below the original ditch or water course bottom for the full bottom width
 - 2. Minimum width: 18 inches into the side slopes
 - 3. Minimum thickness: 12 inches

3.18 DISPOSAL OF EXCESS EXCAVATED MATERIALS

- A. Use excess excavated materials in fills and embankments as indicated on the drawings to the extent needed.
- B. The Contractor is responsible for disposing of excess excavated materials from the site to a location approved by the Town and local authorities.
- C. Remove debris, junk, broken concrete, broken asphalt, rock, stones, stumps, logs, roots, and other unsuitable material from the site and dispose of it
- D. Distribute excess earth from excavations located in unimproved property directly over the pipe trench and within the pipeline right-of-way to a max depth of 6 inch above the original ground surface elevation at and across the trench and sloping uniformly each way
 - 1. Carefully finish material thus wasted with a drag, blade machine, or other suitable tool to a smooth, uniform surface without obstructing drainage at any point
 - 2. Do not waste excess excavated material in the above manner where the trench lines crosses or is within a railroad, public road, or highway right-of-way

3.19 FINAL GRADING

- A. After completion of all other outside work and after backfilling is completed and settled, bring to grade at the indicated elevations
- B. Graders and other power equipment may be used for final grading and slope dressing if the result is uniform and equivalent to hand work
- C. Grade all surfaces for effective drainage, provide a 2 percent minimum slope except as otherwise required
- D. Provide a smooth transition between adjacent existing grades and new grades
- E. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances
- F. Slope grades to direct water away from buildings and prevent ponds from forming where not designed.
- G. Finish subgrades at lawns and unpaved areas to required elevations within a tolerance of plus or minus one (1) inch.

3.20 SLOPE AND CHANNEL STABILIZATION

- A. Cover channel banks, slopes, bottom and thalweg (water flowline at lowest point in channel) with erosion control fabric mat where grade is 3H to 1V or greater and where indicated on the Drawings
- B. Lay fabric smoothly on surface, bury top end of each section in 6-inch deep excavated topsoil trench. Provide 6-inch overlap minimum of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil
- C. Secure outside edges and overlaps at 48 inch intervals with 4-inch to 6-inch U-shaped type pins or wooden stakes depending on ground condition
- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil
- E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches
- F. Maintain integrity of erosion control fabric

3.21 SETTLEMENT

- A. Warranty for settlement of all fills, embankments, and backfills is stipulated in the General Conditions from final completion of Contract under which Work is performed
- B. Repair or replace within 30 days after notice by Town

3.22 FIELD QUALITY CONTROL

A. Coordinate testing with Town. Contractor will provide all field testing to determine compliance of in-place and backfill materials and compaction in accordance with the specifications, and to verify design bearing capacities.

B. Fills and Embankment

- 1. Two moisture-density relationship tests, ASTM D698, on each type of fill material
- 2. One in-place compaction test for each 5,000 square feet every 1.5 feet of vertical lift of material placed
- 3. Additional in-place compaction tests at the discretion of the Town

C. Pipe Embedment and Backfill

- 1. Two moisture-density relationship tests, ASTM D698, or two relative density tests, ASTM D4253/D4254, as appropriate for each type of embedment on backfill material proposed, except granular embedment material
- 2. One in-place compaction test every 200 lineal feet of trench in the compacted embedment zone and at every 1.5 feet of vertical lift of backfill materials, ASTM D2922/D3017
- 3. One in-place compaction test near top of trench for trench depth of 2 feet or less, ASTM D2922/D3017
- 4. Additional in-place compaction tests at the discretion of the Town

D. Pavement and Structural Subgrades

- 1. At a minimum, two moisture-density relationship tests, ASTM D698, or two relative density tests, ASTM D4253/D4254, as appropriate and adequate for each type backfill material proposed.
- 2. Perform tests for each footing, concrete site feature, and drainage structure subgrade. Perform tests at every 50 linear feet of subgrade of foundation walls, retaining walls, and curbing, pans, drainage features, walks, etc. (or portions thereof). Perform tests every 2,000 square feet required of building slab area, exterior slabs and pavement/flatwork areas (with no less than 3 tests). Test at subgrade and at every vertical lift of backfill materials placed.
- 3. Additional in-place compaction tests at the discretion of the Town

END OF SECTION